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10/580,739	05/26/2006	Salman Dermeik	TF94-22991/A/PFE 318/PCT	9365
324	7590	09/03/2008	EXAMINER	
JoAnn Villamizar Ciba Corporation/Patent Department 540 White Plains Road P.O. Box 2005 Tarrytown, NY 10591			WALTERS JR, ROBERT S	
		ART UNIT	PAPER NUMBER	
		1792		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/580,739	<b>Applicant(s)</b> DERMEIK ET AL.
	<b>Examiner</b> ROBERT S. WALTERS JR	<b>Art Unit</b> 1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 26 May 2006.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-14 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)

Paper No(s)/Mail Date 8/24/2006

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Application***

Claims 1-14 are pending and presented for examination.

### ***Specification***

The disclosure is objected to because of the following informalities: The disclosure needs to have the appropriate sections and headings.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(I) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The use of the trademarks LUPASOL and POLYMIN has been noted in this application.

They should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

#### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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1. Claims 1-2, 4-5, 7, 10-11, and 13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 9-16 and 19 of copending Application No. 11/910106. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of copending Application No. 11/910106 are essentially identical to those of the pending claims with the exception that the claims of copending Application No. 11/910106 are drawn to treatment of fibers with less than 20% by weight of cellulose fibers rather than from 20-100% by weight of cellulose fibers in the pending application. However, it would be obvious to one of ordinary skill in the art at the time of the invention to modify Application No. 11/910106 to treat fibers from 20-100% by weight of cellulose. One of ordinary skill in the art at the time of the invention could have made this modification with a reasonable expectation of success and an expected result of providing a flame-retardant product composed of a higher percentage of cellulose fibers by weight.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

2. Claims 1-2, 4-11, and 13-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 14-19 and 23-29 of copending Application No. 11/910468. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of copending Application No. 11/910468 are essentially identical to those of the pending claims with the exception that the claims of copending Application No. 11/910468 are drawn to a flame-retardant treatment on a general fiber product and the ratio of secondary to tertiary amino groups is different from that of

the pending application. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Application No. 11/910468 for treatment of a 20-100% by weight cellulose fiber product or precursor with the polyethylenimine component having the claimed ratio of secondary to tertiary amino groups. It would have first been obvious to modify the claimed ranges through a process of routine optimization and second one of ordinary skill in the art at the time of the invention could have modified copending Application No. 11/910468 to treat 20-100% by weight cellulose fibers with a reasonable expectation of success and with the result of a predictable product, namely a cellulose based fiber product having enhanced flame-retardation.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3-5, 7, 10-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace (U.S. Pat. No. 2286726) in view of Tomalia et al. (*Encyclopedia of Polymer Science and Engineering*, Vol. 1, Wiley N.Y. 1985, pages 680-739) and LeBlanc et al. (U.S. Pat. No. 3963437, hereinafter referred to as LeBlanc'437).

I. Regarding claims 1, 3, 5, 7, and 10, Wallace teaches a process for the flame-retardant treatment of a cellulosic material (pg 1, column 1, lines 1-4) by treating the material with a component A being a polyethylenimine (Example 2) followed by treating the material with a component B being phosphoric acid (Example 2) but could also be other polybasic acids (pg 1, column 2, lines 8-14 which could include such materials as the phosphonic acids of formulas I-III) in which the components are applied in the form of a mixture with water and neither of the components contain metal or metal compounds (see Example 2). Wallace fails to explicitly teach the cellulosic material being a fiber product or precursor wherein the polyethylenimine has

the structure as claimed in claims 1 and 3 and wherein component B is specifically one of the phosphonic acids claimed in formulas I-III in completely unneutralized form.

Tomalia teaches branched polyethylenimines which contain primary, secondary, and tertiary amino groups in which the range of secondary amino groups to primary amino groups is approximately 2:1 and the ratio of secondary amino groups to tertiary amino groups is approximately 2:1 (pg 689, see 1st full paragraph). Tomalia further teaches that these polyethylenimines are readily available in a range of molecular weights from 300 to greater than 60000 (pg 695, see Commercial Availability Section) and that branched polyethylenimines are formed by polymerization of ethyleneimine (pg 691, last two lines) and have the structure depicted in claim 3 (see structure on pg 689). Further, the value of a is greater than the value of b as Tomalia teaches a ratio of secondary to tertiary amino groups being 2:1 (see above).

LeBlanc'437 teaches the use of a phosphonic acid of general formula (I) where R is an alkyl chain which can be 3 or 4 atoms, R<sup>1</sup> and R<sup>3</sup> being H and R<sup>2</sup> being P(O)(OH)<sub>2</sub> (column 3, lines 11-25) wherein all the OH groups are present in unneutralized form (the reference teaches the use of the acid specifically, see column 5, lines 13-17) to impart durable flame-retardant properties to cellulosic fiber containing products (abstract). These materials may be 100 percent cotton cloth (see column 4, lines 16-19, which would have a weight percent of greater than 20% cellulose fibers or alternatively it would be obvious to one of ordinary skill in the art to treat fibers which are greater than 20% cellulose by weight with a reasonable expectation of success and a predictable result).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Wallace's method of treating a cellulosic material to impart flame-

retardation by treating a specific cellulosic material comprising a fiber product or precursor greater than 20% by weight of cellulose fibers with the specific phosphonic acid in unneutralized form as disclosed by LeBlanc and the specific polyethylenimines as disclosed by Tomalia. One would have been motivated to make this modification as LeBlanc'437 teaches that their composition provides a durability of flame retardance, good strength retention, and low shrinkage in fabrics comprised of the cellulosic material (column 7, lines 28-33). Further, one would have been motivated to use Tomalia's specific polyethylenimines as they teach that these branched polyethylenimines are readily accessible and purchaseable (see above) and therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use Tomalia's polyethylenimines with a reasonable expectation of success and the predictable result of providing a durable flame-retardant treatment in combination with LeBlanc'437's phosphonic acid.

II. Regarding claim 4, Wallace in view of Tomalia and LeBlanc'437 teach all the elements of claim 1 as disclosed above. Wallace in view of Tomalia and LeBlanc'437 fail to teach the weight ratio of component A to component B applied to the fiber being from 1:1.3 to 1:4.0. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

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III. Regarding claims 11 and 13, Wallace in view of Tomalia and LeBlanc'437 teach a method of providing a flame-retardant treatment to cellulose fibers wherein component A and the phosphonic acid of formula (I) as component B is added. As the method of claim 1 and claims 11 and 13 do not require the phosphonic acids of formula (II) and (III) and the references of record do not have these phosphonic acids present, the limitations of claims 11 and 13 have not been considered. For these limitations to be considered, they must be rewritten to specify the method of claim 1, wherein component B is a phosphonic acid of formula (II) for claim 11 and wherein component B is a phosphonic acid of formula (III) for claim 13.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace in view of Tomalia and LeBlanc'437 as applied to claim 1 above, and further in view of LeBlanc et al. (U.S. Pat. No. 4013813, hereinafter referred to as LeBlanc'813).

Regarding claim 2, Wallace in view of Tomalia and LeBlanc'437 teach all the elements of claim 1 as well as that the phosphonic acid is added in unneutralized form as the acid (see above) and that a mixture of phosphonic acids can be utilized (see LeBlanc'437 at column 3, lines 38-39). Wallace in view of Tomalia and LeBlanc'437 fail to teach component B being a mixture including a phosphonic acid of formula (II). LeBlanc'813 teaches the use of a phosphonic acid of formula (II) (see abstract) in a formulation to be added to water and used to treat fabric to make them flame retardant (abstract). It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Wallace in view of Tomalia and LeBlanc'437's method to include the additional phosphonic acid as disclosed by LeBlanc'813 to

provide an improved flame retardant composition. One would have been motivated to make this modification as LeBlanc'813 teaches that their formulations can treat fabrics to make them flame retardant inexpensively and with low toxicity (column 4, lines 3-7) and good durability (abstract) and therefore it would be obvious to one of ordinary skill in the art at the time of the invention that this formulation could be added to Wallace in view of Tomalia and LeBlanc'437's method with a reasonable expectation of success and a predictable product of a flame-retardant precursor or product with additional flame retardant elements.

5. Claims 6, 9, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace in view of Tomalia and LeBlanc'437 as applied to claim 1 above, and further in view of Langguth et al. (U.S. Pat. No. 3398019).

Regarding claims 6, 9, and 14, Wallace in view of Tomalia and LeBlanc'437 teach all the limitations of claim 1, including applying component A earlier than B (see Wallace at Example II), however fail to teach the method of treating the fibers with component A and B where the fibers are in an aqueous suspension, processing with heat and pressure to give a fiberboard, comminuating and washing with water and inorganic salts, followed by a further treatment of component B and processing under heat and pressure to give the final fiberboard or pressboard product.

Langguth teaches a method of fiber-proofing cellulosic material (column 1, lines 9-10) by treating an aqueous slurry (comparable to a suspension) of pulp (one of ordinary skill in the art at the time of the invention would realize that this could be fibers of an appropriate length as well

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as pulp) (see column 3, step 1) with addition of a flame retardant as an aqueous solution to the slurry of pulp (column 3, lines 68-70), which can include an aqueous solution of an inorganic salt (column 3, lines 68-74). The pulp is then treated with heat and pressure to provide a fiberboard or pressboard (see column 3, steps 2 and 3) as is well known in the art. Langguth fails to teach the prepared board being further processed by comminuting and treating the material with the inorganic salt and component B again and then treating with heat and pressure to give a new board.

It would be obvious to one of ordinary skill in the art at the time of the invention to modify Wallace in view of Tomalia and LeBlanc'437's method for fire-proofing cellulosic material to make fiberboard by preparing an aqueous suspension of the cellulosic fiber and adding the components A followed by B, then preparing the fiberboard under heat and pressure, as disclosed by Langguth and is further well known in the art. Further, it would be obvious to one of ordinary skill in the art at the time of the invention to comminute this board, wash with water containing an inorganic salt (disclosed by Langguth to impart flame-retardation) then retreat with component B and again process under heat and pressure to prepare a board (as disclosed by Langguth) as these additional steps would obviously serve to impart a further flame-retardation to the fibers as they would help to incorporate additional component B and the inorganic salt into the fiber before final processing. One would have been motivated to make these modifications as one of ordinary skill in the art at the time of the invention could have applied the well known technique of preparing fiberboard, as taught for example by Langguth, to Wallace in view of Tomalia and LeBlanc'437's method with a reasonable expectation of success and with the predictable result of providing a flame-retardant fiberboard or pressboard. Further,

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one would have been motivated to add the additional steps as they would obviously impart more flame-retardant elements into the fiber and would be expected to impart the resultant fiberboard or pressboard with a better flame-retardation than a once treated article.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace in view of Tomalia and LeBlanc'437 as applied to claim 1 above, and further in view of Kuehn (U.S. Pat. No. 3864135).

Regarding claim 8, Wallace in view of Tomalia and LeBlanc'437 teach all the limitations of claim 1 including that a mixture of phosphonic acids can be utilized (see LeBlanc'437 at column 3, lines 38-39). Wallace in view of Tomalia and LeBlanc'437 fail to teach an additional component comprising polymaleic acid or partly neutralized polymaleic acid or a partial ester of orthophosphoric acid being used in the treatment as well. Kuehn teaches the use of partial esters of phosphoric acid as flame-retardant elements (column 12, lines 12-14). It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to add a partial ester of phosphoric acid to Wallace in view of Tomalia and LeBlanc'437's composition. One would have been motivated to make this modification as one of ordinary skill in the art at the time of the invention could have added the partial ester of phosphoric acid with a reasonable expectation of success to Wallace in view of Tomalia and LeBlanc'437's method with the expected result of providing a further flame-retardation to the cellulosic fibers being treated, as the addition of further fire-proofing agents would be expected to impart an even better fire-proofing to the cellulosic fibers than the addition of component A and B alone.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace in view of Tomalia and LeBlanc'437 as applied to claim 1 above, and further in view of Dorn et al. (U.S. Pat. No. 5607990).

Regarding claim 12, Wallace in view of Tomalia and LeBlanc'437 teach all the limitations of claim 1, however fail to teach the phosphonic acid having R<sup>2</sup> the same as R<sup>3</sup>. Dorn teaches the use of hydroxyethane diphosphonic acid (claim 5), which is a compound of formula (I) wherein R<sup>2</sup> is the same as R<sup>3</sup>, as a molecule that can act as a flame-retardant (see claim 1). It would have been obvious to one of ordinary skill in the art at the time of the invention that the phosphonic acid disclosed by Dorn could be substituted for the phosphonic acid in Wallace in view of Tomalia and LeBlanc'437's method. One would have been motivated to make this modification as one of ordinary skill in the art at the time of the invention could have made this substitution with a reasonable expectation of success and with the expected result of providing a flame-retardant treatment to a cellulosic fiber product.

***Pertinent Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bullock (U.S. Pat. No. 4479912)

Carter et al. (U.S. Pat. No. 3367828)

Kuchn (U.S. Pat. No. 3801333)

***Conclusion***

Claims 1-14 are pending.

Claims 1-14 are rejected.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT S. WALTERS JR whose telephone number is (571)270-5351. The examiner can normally be reached on Monday-Thursday, 6:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT S. WALTERS JR/  
August 29, 2008  
Examiner, Art Unit 1792

/Michael Barr/  
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